

REMARKS

In view of the above amendments and following remarks, reconsideration and further examination are respectfully requested.

Claims 1-16 have been canceled and claims 17-35 have been added.

The specification and abstract have been reviewed and revised to make editorial changes thereto and generally improve the form thereof, and a substitute specification and abstract are provided. No new matter has been added by the substitute specification and abstract.

The instant invention pertains to a stroller including a main structure and a seat structure. Such a stroller is generally known in the art, but suffers from drawbacks as expressed on page 1 of the original specification. Applicants have addressed and resolved these drawbacks by providing a unique stroller.

Specifically, in accordance with a first embodiment, with reference to Figures 1-4 for example, the stroller comprises a main structure 12, a body structure 14, a seat 16, a reclining mechanism 20, and flexible connecting flaps 46 connecting two side parts 42 of the body structure to two back pipes 30 of the main structure, respectively. The flexible connecting flaps each have a predetermined length and are independent of the two side parts. Because the side parts are connected to the back pipes by connecting flaps of a flexible material, and because the connecting flaps have a predetermined length and are independent of the side parts, it is unlikely that the connecting flaps will obstruct a reclining operation of the reclining mechanism, regardless of a material of the side parts. New claim 17 is believed to be representative of this embodiment.

In accordance with a second embodiment of the invention, with reference to Figures 5-7 for example, the stroller comprises a main structure 12, and a seat structure 17 formed of a cushioning material. The seat structure has a body part and a seat part, with the body part including a middle part 19a and two side parts 19b, and elastic members 50a, 50b and 50c are embedded within the two side parts. Because the elastic members are embedded within the side parts, the side parts can easily and securely restore the seat structure to an original shape. New claim 21 is representative of this embodiment.

And, in accordance with a third embodiment of the invention, with reference to Figures

8-10 for example, the stroller comprises a main structure including a handle 115, rear legs 114 and front legs 112, a support sheet 152 supported on the main structure, and a detachable seat structure supported on the support sheet and including a seat part 130, a back part 132, and side parts 154 rising from opposite sides of the seat part. Strings 155 are extended and fastened to a pair of ends within the side parts so as to hold the side parts in a standing position. Alternatively, the detachable seat structure can be eliminated, and the support sheet itself can have side parts rising from opposite sides of a supporting seat part of the support sheet. These strings pull the side parts inward, whereby the side parts can be securely retained in a standing position even if the side parts tend to be bent. New claims 26 and 34 are believed to be representative of this embodiment.

Claims 1-5 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hsia; claims 6-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hsia in view of Tam et al.; claims 12-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Woods in view of Hsia; and claim 16 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Woods in view of Hsia and further in view of Mong-Hsing. These rejections are respectfully traversed in part, and the references relied upon are not applicable with regard to the newly added claims for the following reasons.

Please note that new claims 17, 21, 26 and 34 generally correspond to former claims 1, 6, 12 and 16, respectively, and accordingly, the rejection of claims 1, 6, 12 and 16 will be discussed as they pertain to new claims 17, 21, 26 and 34.

In rejecting claim 1 as being anticipated by Hsia, the Examiner took the position that this reference discloses a stroller that includes connecting members which connect back pipes 151 to side parts 24 and 25 of body structure 20. However, while Hsia does disclose a stroller having a back support 132 and side supporting units, the side supporting units are directly connected to the pipes 151 without any connecting flaps. In other words, portions of the side supporting units themselves are used to connect the side supporting units to the pipes 151. Therefore, it is necessary for the side supporting units of Hsia to be of a flexible material so as not to obstruct a reclining operation performed by a reclining mechanism. To the contrary, because the

connecting flaps of the present invention are of a flexible material, and are independent of the side parts, it is possible to use a relatively hard material for the side parts.

Claim 17 is believed to adequately bring out this feature by requiring the connecting flaps to be **flexible and independent of the two side parts**. Thus, because the connecting members of Hsia are an extension of the side parts, and are not independent thereof, claim 17 is not anticipated by Hsia. The other references do not resolve this deficiency of Hsia, and accordingly, claims 17 - 25 are allowable over the relied-upon references either taken alone or in combination.

In rejecting claim 6 as being obvious over a combination of Hsia and Tam et al., the Examiner took the position that Tam et al. discloses elastic members 216, 218 embedded in at least some parts of seat structure 100. However, the shape memory elements 216, 218 of Tam et al. are only provided along a periphery of parts 222, and thus are not **embedded** within the seat structure as required by claim 6 and new claim 21. Accordingly, a combination of Hsia and Tam et al. would not be a result of the invention as recited in claim 21. The other references do not resolve this deficiency of Tam et al., and accordingly, claims 21 - 25 are allowable over any possible combination of the relied-upon references.

In rejecting claim 12 as being obvious over a combination of Woods and Hsia, the Examiner took the position that Hsia teaches the strings as required by claim 12. While Hsia does disclose strings 26 or 22, these strings are external of the seat support structure, and are not **embedded** within the side parts as required by claim 26. Thus, claim 26 is not obvious over a combination of Woods and Hsia. The other references do not resolve this deficiency of Hsia, and accordingly, claims 26 - 33 are allowable over any possible combination of the relied-upon references.

In rejecting claim 16 as being obvious over a combination of Woods, Hsia and Mong-Hsing, the Examiner again relied upon Hsia for a teaching of the strings as recited in claim 16. Accordingly, because claim 34 requires that the strings are **embedded** within the side parts, claims 34 and 35 are allowable for reasons analogous to those expressed above with regard to why claims 26 - 33 are allowable.

Additionally, claims 27, 29, 31, 33 and 35 are believed to be patentable in their own right because these claims require the strings to be **tensioned**. Tensioned strings are not taught or suggested by any of the references.

In view of the above, it is respectfully submitted that the application is now in condition for allowance and an early Notice of Allowance is earnestly solicited, with the allowed claims being 17-35.

If after reviewing this Amendment, the Examiner believes that any issues remain which must be resolved before the application can be passed to issue, the Examiner is invited to contact the Applicants' undersigned representative by telephone to resolve such issues.

Respectfully submitted,

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STROLLER

[0001] The present invention relates to a stroller and, more particularly, to a stroller provided with a reclining seat structure forming a seat for a baby.

5

DESCRIPTION OF THE RELATED ART

[0002] Various devices are incorporated into a stroller for carrying a baby to ensure comfort for a baby seated on ~~the~~ a seat of the stroller. For example, a stroller is provided with a seat formed of a material having a high cushioning property on which a baby is seated directly to
10 improve ride comfort. Another stroller is provided with a body unit forming a seat and capable of being reclined at a desired inclination by a reclining mechanism to ensure ride comfort for a baby seated on the seat.

[0003] A stroller provided with a seat structure forming a seat and formed of a cushioning material, and a reclining mechanism for reclining the seat structure ensures ride
15 comfort for a baby.

[0004] An appropriate shape of the seat structure forming the seat is dependent on the inclination of the seat structure. Since the seat structure is formed of members having a comparatively high cushioning property, the seat structure is liable to become deformed when the inclination thereof is changed, and is not necessarily capable of maintaining an appropriate shape.
20 Therefore, when the inclination of the seat structure is changed by the reclining mechanism (reclining operation), the seat structure gets out of shape and, for example, ~~the~~ a back part of the seat structure collapses into the seat (forward fall), and ~~the~~ side parts of the seat structure protrude into the seat. When the seat structure gets out of shape, the seat becomes deformed in an awkward shape, ride comfort is deteriorated, and ~~the~~ an appearance of the ~~strollers~~ stroller is
25 spoiled.

DISCLOSURE SUMMARY OF THE INVENTION

[0005] The present invention has been made in view of such circumstances and it is therefore an object of the present invention to provide a stroller including a seat structure
30 forming a seat for a baby, and having a shape that can be adjusted when the seat structure is inclined by a reclining operation.

[0006] According to the present invention, a stroller of a first embodiment comprises: a main structure provided with a handle including a pair of back pipes; a body structure disposed between the pair of back pipes, and having a back part, and a pair of side parts on ~~the~~ right and

left sides of the back part; a seat; and a reclining mechanism capable of adjusting the inclination of the body structure relative to the seat; wherein the ~~pair of~~ side parts are connected to the ~~corresponding~~ back pipes, respectively, by connecting members having a predetermined length.

[0007] In the stroller of the first embodiment according to the present invention, it is
5 preferable that the connecting members are connected to the back sides of the ~~corresponding~~ side parts, respectively.

[0008] In the stroller of the first embodiment according to the present invention, it is preferable that the connecting members are connected to parts ~~of~~ near the outer edges of the side parts.

10 [0009] In the stroller of the first embodiment according to the present invention, it is preferable that the connecting members are formed of a flexible material.

[0010] In the stroller of the first embodiment according to the present invention, it is preferable that the back part and the pair of side parts are integrated in a single structure.

[0011] According to the present invention, a stroller of a second embodiment comprises:
15 a main structure including a handle, front legs, and rear legs; and a cushioning seat structure having a body part and a seat part, and formed of a cushioning material; wherein elastic members are embedded at least in some parts of the cushioning seat structure.

[0012] In the stroller of the second embodiment according to the present invention, the cushioning seat structure is divided into a middle part and side parts on the right and the left
20 sides of the middle part, and the elastic members are embedded in the side parts of the cushioning seat structure.

[0013] In the stroller of the second embodiment according to the present invention, the elastic members are embedded in parts of the cushioning seat structure near ~~the~~ a boundary between the body part and the seat part.

25 [0014] In the stroller of the second embodiment according to the present invention, the elastic members are embedded in the seat part.

[0015] The stroller of the second embodiment according to the present invention further comprises a stroller folding mechanism, wherein the elastic members are embedded in bendable parts of the cushioning seat structure, which are bent when the stroller is folded ~~up~~ by operating
30 the folding mechanism.

[0016] In the stroller of the second embodiment according to the present invention, the elastic members include a plastic member.

[0017] A stroller of the third embodiment according to the present invention comprises: a main structure including a handle, a pair of rear legs, and a pair of front legs; a support sheet

supported on the main structure and including a supporting seat part and a supporting back part; and a detachable seat structure supported on the support sheet, and having a seat part, side parts rising from the right and left sides of the seat part, and a back part rising from the a back side of the seat part; wherein strings are extended in and fastened to the side parts of the detachable seat structure to hold the side parts in a standing position.

[0018] In the stroller of the third embodiment according to the present invention, the strings are extended in the side parts so as to slope up ~~rearward~~ rearwardly.

[0019] In the stroller of the third embodiment according to the present invention, the strings are extended in the side parts so as to slope down ~~rearward~~ rearwardly.

[0020] In the stroller of the third embodiment according to the present invention, the strings have each opposite ~~ends~~ end fixedly held in the side ~~part~~ parts.

[0021] According to a modification of the third embodiment according to the present invention, a stroller comprises: a main structure including a handle, a pair of rear legs, and a pair of front legs; and a support sheet supported on the main structure, and including a supporting seat part and a supporting back part; wherein the supporting sheet has side parts rising from opposite sides of the supporting seat part, and strings are extended in and fastened to the side parts of the support sheet to hold the side parts in a standing position.

BRIEF DESCRIPTION OF THE DRAWINGS

[0022] Fig. 1 is a schematic perspective view of a stroller in a first embodiment according to the present invention;

[0023] Fig. 2 is a schematic, perspective, rear view of the stroller shown in Fig. 1;

[0024] Fig. 3 is a schematic front ~~elevation~~ elevational view of the stroller shown in Fig. 1 in a folded state;

[0025] Fig. 4 is a schematic perspective view illustrating ~~the~~ a structural relation relationship between side parts of a body structure, connecting members, and back pipes in the stroller shown in Fig. 1;

[0026] Fig. 5 is a schematic perspective view of a stroller in a second embodiment according to the present invention;

[0027] Fig. 6 is a schematic, perspective, rear view of the stroller shown in Fig. 5;

[0028] Fig. 7 is a schematic perspective view of a cushioning seat structure;

[0029] Fig. 8 is a schematic perspective view of a stroller in a third embodiment according to the present invention;

[0030] Fig. 9 is a schematic, perspective, rear view of the stroller shown in Fig. 8; and

[0031] Fig 10 is a schematic perspective view of a detachable seat.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIRST EMBODIMENT

5 [0032] Preferred embodiments of the present invention will be described with reference to the accompanying drawings.

[0033] Figs. 1 to 4 show a stroller 10 in a first embodiment according to the present invention. Fig. 1 is a schematic perspective view of the stroller 10, Fig. 2 is a schematic, perspective, rear view of the stroller 10, Fig. 3 is a schematic front ~~elevation~~-elevation view of
10 the stroller 10 in a folded state, and Fig. 4 is a schematic perspective view illustrating the ~~a structural relation~~-relationship among side parts of a body structure, connecting members, and back pipes.

[0034] Referring to Figs. 1 and 2, the stroller 10 in the first embodiment has a main structure 12, a body structure 14, a seat 16, a support sheet (support member) 18 for supporting
15 the body structure 14 on the main structure 12, and a reclining mechanism 20 capable of adjusting the ~~an~~-inclination of the body structure 14 relative to the seat 16.

[0035] As shown in Fig. 1, the main structure 12 includes a pair of front legs 22 respectively supporting double type front wheels 21, a pair of rear legs 24 respectively supporting double type rear wheels 23, a substantially U-shaped handle 26, and a pair of armrests
20 28. The handle 26 has a pair of back pipes 30, and an operating device 32. The armrests 28 have rear ends pivotally connected to parts near the lower ends of the back pipes 30, and front ends pivotally connected to upper end parts of the front legs 22. Upper end parts of the rear legs 24 are pivotally connected to middle parts of the armrests 28. Lower ends of L-shaped brackets 34 are pivotally connected to middle parts of the rear legs 24, respectively. Lower
25 parts of the back pipes 30 of the handle 26 are pivotally connected to middle parts of the brackets 34, respectively.

[0036] When the stroller 10 is in an unfolded state as shown in Figs. 1 and 2, locking members, not shown, slidably put on lower parts of the back pipes 30 are engaged with retaining parts, not shown, formed on upper parts of the brackets 34 to hold the stroller 10 in the unfolded
30 state. When the stroller 10 is in an unfolded state, the locking members are disengaged from the retaining parts by operating the operating device 32 of the handle 26. When the locking members are disengaged from the retaining parts of the brackets 34, the armrests 28 and the associated members are able to turn upward on pivots pivotally supporting the armrests 28 and the associated members on the back pipes 30. Consequently, the front legs 22 and the rear legs

24 can be extended substantially parallel to each other to fold the stroller 10. When the right and the left back ~~pipe-pipes~~ 30 are turned further forward, the handle 26 and the associated members can be bent ~~in~~into a U-shape to fold the stroller 10 in a more compact shape as shown in Fig. 3.

5 [0037] As shown in Fig. 1, the body structure 14 is provided between the ~~pair of~~ back pipes 30. The body structure 14 is formed of a comparatively soft cushioning material having an excellent cushioning property, such as cotton. The body structure 14 has a back part 40, and a pair of side parts 42 extending from ~~the a~~ right and ~~the a~~ left side of the back part 40. The back part 40 and the pair of side parts 42 are integrated in a single structure. The back part 40
10 includes a headrest on which the head of a baby on a seat 16 rests.

[0038] The seat 16 is supported on the main structure 12 around a lower part of the body structure 14. The seat 16 has a seating surface that can be substantially horizontally extended. The seat 16 is formed of a cushioning material, such as cotton, so that the seat 16 can provide an ~~excellently~~excellent cushioning surface comfortable for sitting. The seat 16 and the body
15 structure 14 constitute a cushioning seat structure. In this embodiment, the body structure 14 and the seat 16 are integrated in a single structure, and the body structure 14 and the seat 16 form a cushioning seat structure 17 excellent in terms of cushioning performance.

[0039] As shown in Fig. 2, the support sheet 18 is formed of a material having a comparatively high strength, such as a polyester fabric, in the shape of a sheet and has a
20 comparatively high flexibility. Parts of the support sheet 18 are formed ~~in of~~ a meshed structure to provide the support sheet 18 with a comparatively high ventilative property. Hooking members 44a are attached to right and left end parts of the support sheet 18. The support sheet 18 is placed between the body structure 14 and the main structure 12 so as to extend between the ~~pair of~~ back pipes 30. The hooking members 44a attached to the parts of the support sheet 18
25 near the right and the left end of the support sheet 18 are engaged with catching members 44b attached to the back pipes 30 to hold the support sheet 18 on the back pipes 30.

[0040] As shown in Fig. 2, the reclining mechanism 20 includes an inclination adjusting string 20a. The inclination adjusting string 20a is extended along the flexible support sheet 18, and connected to the back pipes 30. The inclination adjusting string 20a is moved in ~~the~~
30 directions of ~~the~~ arrows in Fig. 2 to adjust ~~the an~~ inclination of the body structure 14 relative to the seat 16 by turning the body structure 14 in the directions of ~~the~~ arrows indicated by broken lines in Fig. 2.

[0041] Referring to Fig. 4, each of the pair of side parts 42 is connected to ~~the a~~ corresponding back pipe 30 with a connecting flap 46 of a predetermined length. The length of

~~the~~ connecting flaps 46 is selectively determined so that the connecting flaps 46 may not obstruct ~~the a~~ reclining operation of the reclining mechanism 20 for reclining the body structure 14, taking into consideration ~~the a~~ material forming the connecting flaps 46 and other necessary conditions. The connecting flaps 46 are formed of a flexible material, such as a knitted fabric.

5 The connecting flaps 46 are connected through the support sheet 18 to ~~the~~ corresponding back pipes 30. A hooking member 48a is attached to a part of ~~the~~ connecting flap 46 near an edge of the connecting flap 46, on ~~the a~~ side of the back pipe 30, and a catching member 48b capable of catching the hooking member 48a is attached to the back pipe 30. ~~The hooking~~ Hooking members 48a are engaged with ~~the~~ catching members 48b, and ~~the~~ hooking members 44a of the
 10 support sheet 18 are engaged with ~~the~~ catching members ~~44a~~ 44b attached to the back pipes 30 to attach the connecting flaps 46 through the support sheet 18 to the corresponding back pipes 30. Edge parts of the connecting flaps 46 on ~~the a~~ side of the side parts 42 are sewed to edge parts of ~~the~~ corresponding side parts 42, so that the connecting flaps 46 are fixed to the side parts 42.

[0042] ~~The~~ An operation of the stroller 10 in the first embodiment thus constructed will
 15 be described.

[0043] ~~The~~ An effective length of the inclination adjusting string 20a of the reclining mechanism 20 of the stroller 10 is adjusted by pulling or releasing the inclination adjusting string 20a in the directions of the arrows indicated by continuous lines in Fig. 2 to adjust the inclination of the body structure 14 relative to the seat 16 by turning the body structure 14 in the directions
 20 of the arrows indicated by broken lines in Fig. 2.

[0044] Since the pair of side parts 42 of the body structure 14 are connected by the connecting flaps 46 to the corresponding back pipes 30, respectively, the back pipes 30 adjust ~~the a~~ position and shape of the pair of side parts 42 properly. Thus, even if ~~the a~~ distance between ~~the a~~ position at which the connecting flaps 46 are attached to the pair of side parts 42, and ~~the a~~ position at which the back pipes 30 are connected to the connecting flaps 46 ~~is~~, are changed
 25 when the body structure 14 is reclined by the reclining mechanism 20, the connecting flaps 46 having the predetermined length and formed of the flexible material enables the body structure 14 to be reclined smoothly with the side parts 42 kept supported on the back pipes 30. Thus, the connecting flaps 46 having the predetermined length do not obstruct ~~the a~~ reclining operation
 30 for reclining the body structure 14, ~~the a~~ position and shape of the body structure 14 can be properly adjusted, and ~~the~~ deformation of the body structure 14 can be effectively prevented.

[0045] Particularly, the position and shape of the side parts 42 can be naturally and effectively adjusted, and the side parts 42 can be properly held.

[0046] Since the connecting flaps 46 are attached to ~~the a~~ part near ~~the~~ outer side edges

of the corresponding side parts 42, the back pipes 30 are able to support the side parts 42 through the connecting flaps 46. Thus, the position and shape of the side parts 42 can be effectively adjusted.

[0047] The connecting flaps 46 formed of the flexible material are capable of flexibly conforming to the reclining operation. For example, even if an impulsive force is generated in changing the inclination of the body structure 14 relative to the seat 16 by the reclining mechanism 20, the flexible connecting flaps 46 ~~absorbs~~absorb the impulsive force. Consequently, the stroller 10 is capable of effectively preventing ~~troubles~~trouble, such as the undesirable displacement and the deformation of the body structure 14 due to the action of the impulsive force on the body structure 14 (the back part 40 and the pair of side parts 42).

[0048] Since the back part 40 and the pair of side parts 42 are integrated in a single structure, both the back part 40 and the side parts 42 are held on the back pipes 30 by the connecting flaps 46, and the positions and shapes of the back part 40 and the side parts 42 can be effectively adjusted and maintained properly whether or not the ~~a~~a reclining operation is performed.

[0049] As apparent from the foregoing description, according to the present invention, the pair of side parts of the body structure are connected to the corresponding back pipes by the connecting flaps of the predetermined length, and the side parts are held on the corresponding back pipes by the connecting flaps whether or not the body structure is reclined. Consequently, the shape of the side parts of the body structure can be adjusted according to the ~~a~~a reclining motion of the body structure.

SECOND EMBODIMENT

[0050] A stroller 10 in a second embodiment according to the present invention will be described with reference to Figs. 5 to 7.

[0051] Fig. 5 is a schematic perspective view of the stroller in the second embodiment, Fig. 6 is a schematic, perspective, rear view of the stroller shown 10, and Fig. 7 is a schematic perspective view of a cushioning seat structure included in the stroller 10.

[0052] Referring to Figs. 5 and 6, the stroller 10 in the second embodiment has a main structure 12, a cushioning seat structure 17 mounted on the main structure 12, and a support sheet 18 placed between the main structure 12 and the cushioning seat structure 17.

[0053] As shown in Fig. 5, the main structure 12 includes a pair of front legs 22 respectively supporting double type front wheels 21, a pair of rear legs 24 respectively supporting double type rear wheels 23, a substantially U-shaped handle 26, and a pair of armrests

28. The handle 26 has a pair of back pipes 30, and an operating device 32. The armrests 28 have rear ends pivotally connected to lower end parts near the lower ends of the back pipes 30, and front ends pivotally connected to upper end parts of the front legs 22. Upper end parts of the rear legs 24 are pivotally connected to middle parts of the armrests 28. Lower ends of L-shaped brackets 34 are pivotally connected to middle parts of the rear legs 24, respectively. Lower parts of the back pipes 30 of the handle 26 are pivotally connected to middle parts of the brackets 34, respectively.

[0054] When the stroller 10 is in an unfolded state, locking members, not shown, slidably put on lower parts of the back pipes 30 are engaged with retaining parts, not shown, formed on upper parts of the brackets 34 to hold the stroller 10 in the unfolded state. When the stroller 10 is in an unfolded state, the locking members are disengaged from the retaining parts by operating the operating device 32 of the handle 26. When the locking members are disengaged from the retaining parts of the brackets 34, the armrests 28 and the associated members are able to turn upward on pivots pivotally supporting the armrests 28 and the associated members on the back pipes 30. Consequently, the front legs 22 and the rear legs 24 can be extended substantially parallel to each other to fold the stroller 10. When the right and the left back pipe-pipes 30 are turned forward, the handle 26 and the associated members can be bent forward in a U-shape. Hinges 29 permit the stroller 10 to be folded in three as shown in Fig. 3. A folding mechanism that enables the stroller 10 to be folded includes the operating device 32, the retaining parts of the brackets 34, the hinges 29 and the locking members.

[0055] The cushioning seat structure 17 has a body structure 14 and a seat 16, and is formed of a very soft, cushioning material such as cotton agreeable to the touch and excellent in terms of cushioning performance. As shown in Fig. 7, the cushioning seat structure 17 has a middle part 19a, and side parts 19b respectively rising from the opposite sides of the middle part 19a. Portions of the side parts 19b corresponding to the body structure 14 can be comparatively easily folded and unfolded on the boundaries 14a between the middle part 19a in the body structure 14 and the side parts 19b. The body structure 14 lies between the pair of back pipes 30 (Fig. 5), and has a body part on which the body of a baby on the seat 16 rests, and a head part on which the head of the baby on the seat 16 rests. The seat 16 is supported on the main structure 12 in a lower part of the body structure 14. The seat 16 has a seating surface that can be substantially horizontally extended.

[0056] As shown in Fig. 7, plate-shaped, hard, elastic members 50a, 50b and 50c formed of a plastic material are embedded in the cushioning seat structure 17. In this embodiment, the elastic members 50a, 50b and 50c are embedded in the side parts 19b of the cushioning seat

structure 17. More specifically, the elastic members 50a are embedded in portions of the side parts 19b corresponding to the seat 16, the elastic members 50b are embedded in portions, near ~~the~~ a boundary 16a between the body structure 14 and the seat 16, of the side parts 19b corresponding to the body structure 14, and the elastic members 50c are embedded in portions, which ~~is~~ are folded when the stroller 10 is folded by operating a folding mechanism, of the side parts 19b corresponding to the body structure 14.

[0057] The elastic members 50a, 50b and 50c embedded in the cushioning seat structure 17 ~~has~~ have high elasticity, and are capable of comparatively readily restoring their original shapes when the same are bent.

[0058] As shown in Fig. 6, the support sheet 18 is formed of a material having a comparatively high strength, such as a polyester fabric, in the shape of a sheet and has a comparatively high flexibility. Part of the support sheet 18 is formed ~~in~~ of a meshed structure to provide the support sheet 18 with a comparatively high ventilative property. Hooking members 44a are attached to right and left end parts of the support sheet 18. The support sheet 18 is placed between the body structure 14 and the main structure 12 so as to extend between the ~~pair of~~ back pipes 30. The hooking members 44a attached to the parts of the support sheet 18 near ~~the~~ a right and ~~the~~ a left end of the support sheet 18 are engaged with catching members 44b attached to the back pipes 30 to hold the support sheet 18 on the back pipes 30. Thus, the support sheet 18 supports the cushioning seat structure 17 on the main structure 12 to form a seat assembly for holding a baby therein.

[0059] The stroller 10 in the second embodiment is provided with a reclining mechanism 20 capable of adjusting ~~the~~ inclination of the body structure 14 relative to the seat 16. The reclining mechanism 20 includes an inclination adjusting string 20a. The inclination adjusting string 20a is extended along the flexible support sheet 18, and connected to the back pipes 30. The inclination adjusting string 20a is moved in ~~the~~ directions of ~~the~~ arrows in Fig. 6 to adjust ~~the~~ an inclination of the body structure 14 relative to the seat 16 as shown in Fig. 2.

[0060] ~~The operation~~ Operation of the stroller 10 in the second embodiment thus constructed will be described.

[0061] When the seat assembly is deformed by adjusting ~~the~~ an effective length of the inclination adjusting string 20a (Fig. 6) or by operating the folding mechanism including the operating device 32 to fold the stroller 10 (Fig. 3), the cushioning seat structure 17 of the seat assembly is deformed or bent. The side parts 19b are particularly liable to be bent and creased, and creases are liable to be formed in the side parts 19b. The seat 16, parts in the vicinity of the boundary 16a between the body structure 14 and the seat 16, or portions that are bent when the

stroller 10 is folded by operating the folding mechanism including the operating device 32 are liable to be creased, and creases are liable to be formed therein.

[0062] Even if the cushioning seat structure 17 is thus bent, the elastic members 50a, 50b and 50c embedded in the cushioning seat structure 17 (Fig. 7) restore the cushioning seat structure 17 to its original shape by their resilience so that creases are smoothed out from the cushioning seat structure 17. Thus, the cushioning seat structure 17 is restored to its original shape by the resilience of the elastic members 50a, 50b and 50c embedded in the cushioning seat structure 17 and bends and creases can be smoothed out from the cushioning seat structure 17 even if the cushioning structure 17 is formed of a very soft, poorly resilient material. Since the elastic members 50a, 50b and 50c are embedded in portions of the cushioning seat structure 17, which are often bent or creased, such as the seat 16, portions in the vicinity of the boundary 16a between the body structure 14 and the seat 16, and portions which are bent when the stroller 10 is folded (Fig. 7), bends and creases formed in the cushioning seat structure 17 can be very effectively smoothed out.

[0063] The elastic members 50a, 50b and 50c embedded in the cushioning seat structure 17 can secure ~~the~~ a necessary volume of the cushioning seat structure 17 and maintains the cushioning seat structure 17 in a well balanced shape even if bends and creases are formed in the cushioning seat structure 17. Consequently, ~~the~~ excellent ride comfort can be ensured for a long period of use and ~~the~~ a satisfactory aesthetic appearance of the stroller 10 can be maintained for a long period of use.

[0064] The present invention is not limited to the foregoing stroller 10 and necessary changes in design are possible.

[0065] For example, the elastic members 50a, 50b and 50c may be formed of any suitable elastic material other than ~~the~~ plastic material, provided that the elastic members 50a, 50b and 50c are capable of smoothing out bends and creases formed in the cushioning seat structure 17 by their resilience. The elastic members 50a, 50b and 50c may be formed of a metal, rubber or the like.

[0066] The elastic members 50a, 50b and 50c may be embedded in any suitable portions of the cushioning seat structure 17 other than the aforementioned portions of the cushioning seat structure 17. For example, the elastic members 50a, 50b and 50c may be embedded in optional parts, such as the middle part 19a, the head part and the body part. It is very effective in preventing bending and creasing to embed the elastic members 50a, 50b and 50c in parts that are often subjected to bending or deformation.

[0067] As apparent from the foregoing description, according to the present invention,

bends and creases formed in the cushioning seat structure can be effectively smoothed out by the resilience of the elastic members because the elastic members are embedded at least in some parts of the cushioning seat structure.

5 THIRD EMBODIMENT

[0068] A stroller 110 in a third embodiment according to the present invention will be described with reference to the accompanying drawings.

[0069] Figs. 8 to 10 show the stroller 110 in the third embodiment.

[0070] Referring to Fig. 8, the stroller 110 in the third embodiment has a pair of front legs 112 respectively supporting double type front wheels 111, a pair of rear legs 114 respectively supporting double type rear wheels 113, a curved ~~hand~~ handle 115 formed in a shape substantially resembling an inverted letter U, and a pair of armrests 116.

[0071] The handle 115 has a pair of pipes 117. The armrests 116 have rear ends pivotally connected to lower end parts near ~~the~~ lower ends of the pipes 117, and front ends pivotally connected to upper end parts of the front legs 112.

[0072] Upper end parts of the rear legs 114 are pivotally connected to middle parts of the armrests 116. Lower ends of L-shaped brackets 118 are pivotally connected to middle parts of the rear legs 114, respectively. Lower parts of the pipes 117 of the handle 115 are pivotally connected to the brackets 118, respectively. When the stroller 110 is in an unfolded state, locking members 119 slidably put on lower parts of the pipes 117 are engaged with upper end parts of the brackets 118 to hold the stroller 110 in the unfolded state.

[0073] ~~The right Right and the left~~ front legs 112 are connected by a front connecting bar 121 provided with a footrest 120. ~~The right Right and the left~~ rear legs 114 are connected by a rear connecting bar 122. A connecting bar, not shown, is extended between the right front ~~leg~~ leg 112 and the right rear leg 114, and a connecting bar, not shown is extended between the left front leg 112 and the left rear leg 114.

[0074] The pair of front legs 112 supporting the double type front wheels 111, the pair of rear ~~wheels-legs~~ legs 114 supporting the double type rear wheels 113, the handle 115, and the pair of armrests 116 ~~constitute~~ constitutes a main structure 110a. Stoppers 113a are combined with the double type rear wheels 113 supported by the pair of rear legs 114.

[0075] Referring to Figs. 9 and 10, a support sheet 152 integrally including a supporting seat part 152a and a supporting back part 152b is attached to the main structure 110a. A detachable seat structure 130a integrally including a seat part 130, side parts 154 and a back part 132 is supported on the support sheet 152. The side parts 154 rise from ~~the~~ opposite sides of

the seat part 130, and the back part 132 rises from ~~the~~a rear side of the seat part 130.

[0076] A safety bar 131 is connected to ~~the~~a front ends of the ~~pair of~~ armrests 116. The front connecting bar 121 is provided with a pair of hinges 121a. The safety bar 131 is formed by coating a thin metal strip with a soft synthetic resin. The rear connecting bar 122 is provided
5 with a pair of hinges 122a. An operating device 128 is incorporated into an upper part of the handle 115. ~~The opposite~~Opposite ends of the operating device 128 are connected to the handle 115 by hinges 115a.

[0077] A lap belt 136 having one end attached to the supporting seat part 152a is extended through a slot 130b formed in the seat part 130 and is connected to a seat belt 137 with
10 a buckle 138.

[0078] A support frame 135 for supporting a canopy 134 is pivotally connected to rear parts of the armrests 116 on ~~the~~a side of the handle 115. A basket B is disposed under the seat part 130.

[0079] The detachable seat structure 130a integrally including the seat part 130, the side parts 154 and the back part 132, and the support sheet 152 integrally including the supporting seat part 152a and the supporting back part 152b will be described with reference to Figs. 9 and
15 10.

[0080] The seat part 130, the side parts 154 and the back part 132 are combined integrally to form the detachable seat structure 130a. The detachable seat structure 130a is
20 supported by the support sheet 152 attached to the main structure 110a. The support sheet 152 includes the supporting seat part 152a and the supporting back part 152b. The supporting seat part 152a supports the seat part 130 of the detachable seat structure 130a, and the supporting back part 152b supports the back part 132 of the detachable seat structure 130a.

[0081] The supporting seat part 152a of the support sheet 152 is supported by a seat
25 support mechanism connected to the connecting bars connecting the front legs 112 and the rear legs 114. The supporting back part 152b of the support sheet 152 is held by holding flaps 153 on the pipes 117 of the handle 115.

[0082] Materials forming the detachable seat structure 130a and the support sheet 152 will be explained. The detachable seat structure 130a is formed generally of a flexible, thin
30 material, such as a knitted fabric. The supporting seat part 152a of the support sheet 152 is formed of a synthetic resin fabric, such as a polyester fabric. The supporting back part 152b of the support sheet 152 is a meshed structure formed of a polyester resin. The supporting back part 152b has 3.5 mm diameter meshes. Thus, ventilation around the back part 132 is improved.

[0083] Both the supporting seat part 152a and the supporting back part 152b of the

support sheet 152 may be meshed structures.

[0084] As shown in Fig. 10, tension strings 155 are embedded in the side parts 154 of the detachable seat structure 130a to retain the side parts 154 in a standing position. The detachable seat structure 130a includes the seat part 130, the back part 132 and the side parts 154. The side parts 154 ~~riser~~rise from the seat part 130. Thus, the detachable seat structure 130a has a shape generally resembling a cradle.

[0085] Sometimes, the side parts 154 of the detachable seat structure 130a bend outward when the stroller 110 is unfolded or when ~~the~~a baby on the detachable seat structure 130a touches the side parts 154 because the detachable seat structure 130a is formed of the flexible material. In such a case, it is difficult to maintain the detachable seat structure 130a in the shape resembling a cradle, the baby may touch members around the side parts 154, and it is possible that the detachable seat structure 130a deforms to spoil ~~the~~an appearance of the stroller 110.

[0086] Since the tension strings 155 are embedded in the side parts 154 to prevent ~~the~~an outward bend of the side parts 154, the side parts 154 are not bent outward.

[0087] More concretely, the tension strings 155 are extended in the side parts 154 of the detachable seat structure 130a so as to slope up toward the back part 132 as shown in Fig. 10. ~~The opposite~~Opposite ends 155a and 155b of the tension strings 155 are fastened to inner parts of the side parts 154. The tension strings 155 are tensioned so as to retain the side parts 154 in a standing position. Preferably, the ends 155a and 155b of each tension string 155 are attached to ~~the~~an inner surface and ~~the~~an outer surface of the side part 154, respectively, to pull a part of the side part 154 extending between the ends 155a and 155b. Thus, each tension string 155 pulls the side part 154 inward and thereby the side part 154 is retained in a standing position even if the side part 154 tends to bend outward.

[0088] The tension strings 155 may be extended in the side parts 154 so as to slope down toward the back part 132.

[0089] The stroller 110 shown in Fig. 8 is held in an unfolded state by engaging the locking members 119 put on the lower end parts of the pipes 117 with the upper ends of the brackets 118.

[0090] The operating device 128 combined with the handle 115 is operated to disengage the locking member 119 from the brackets 118. Consequently, the armrests 116 become able to turn upward on members pivotally supporting the armrests 116 on the pipes 117, and the front legs 112 and the rear legs 114 can be extended substantially parallel to each other to fold the stroller 110 and facilitate carrying the stroller 110.

[0091] Hinged parts of the handle 115, the front connecting bar 121, the rear connecting bar 122 and the safety bar 131 can be turned on the hinges 115a, 121a, 122a and 131a included in two vertical planes, respectively, and the seat support mechanism is constructed of flexible belts. Therefore, when the right and the left pipes 117 are turned forward after extending the front legs 112 and the rear legs 114 substantially parallel to each other, the handle 115, the front connecting bar 121, the rear connecting bar 122 and the safety bar 131 can be bent in a U-shape to fold the stroller 110 in three in a more compact shape as shown in Fig. 3.

[0092] As mentioned above, the tension strings 155 extended in the side parts 154 of the detachable seat structure 130a of the stroller 110 in the third embodiment retain the side parts 154 in a standing position, so that the detachable seat structure 130a is surely able to maintain a proper shape resembling a cradle.

[0093] Although the detachable seat structure 130a is supported on the support sheet 152, and the tension strings 155 are extended in the side parts 154 of the detachable seat structure 130a in the third embodiment, the detachable seat structure 130a may be omitted, and supporting side parts, not shown, may be formed integrally with the supporting seat part 152a of the support seat 152 so as to rise from the opposite sides of the supporting seat part 152a.

[0094] In such a case, tension strings may be extended in the supporting side parts of the support seat 152.

[0095] As apparent from the foregoing description, according to the present invention, the side parts of the detachable seat structure can be retained in a standing position by the tension strings extended in and fastened to the side parts of the detachable seat structure. Consequently, the detachable seat structure is able to maintain the a proper shape resembling a cradle stably, and the stroller maintains an excellent appearance and ensures safety.

ABSTRACT OF THE DISCLOSURE

A stroller 10 comprises a main structure 12 provided with a handle 26 including a pair of back pipes 30, a body structure 14, and a seat 16. The body structure 14 includes a back part 40, and a pair of side parts 42 extending from ~~the~~ a right and ~~the~~ a left side of the back part 40, and is formed of a cushioning material. The stroller 10 includes a support sheet 18 for supporting the body structure 14 on the main structure 12, and a reclining mechanism 10 for adjusting ~~the~~ inclination of the body structure 14 relative to the seat 16. The ~~pair of~~ side parts 42 are connected to ~~the~~ corresponding back pipes 30 by connecting flaps 46 formed of a flexible material.